

REMARKS/ARGUMENTS

Favorable reconsideration of this application, in light of the present amendments and following discussion, is respectfully requested.

Claims 2, 3, and 5-23 are pending. Claims 1 and 4 were canceled previously. Claims 5-21 are withdrawn. Claim 2 is amended. Support for the amendment to Claim 2 can be found in the specification on page 8, line 24 – page 9, line 2 and in Fig. 5, for example. No new matter is added.

In the outstanding Office Action, Claim 2 was rejected under 35 U.S.C. § 102(e) as anticipated by Kobayashi et al. (U.S. Patent No. 6,844,094, herein “Kobayashi”). Claims 3 and 22-23 were rejected under 35 U.S.C. § 103(a) as obvious over Kobayashi.

Regarding the rejection of Claim 2 as anticipated by Kobayashi, that rejection is respectfully traversed by the present response.

Amended independent Claim 2 recites, in part:

an exhaust flow path communicating with both the anode and the cathode; and
a gas supply unit having a pump, the pump being linked with the exhaust flow path to apply negative pressure to the cathode so as to introduce gas containing oxidant to the cathode, wherein the pump applies negative pressure further to the anode via the exhaust flow path so as to supply fuel to the anode.

Accordingly, an exhaust flow path communicates with both the anode and the cathode. A gas supply unit has a pump. The pump is linked with the exhaust flow path to apply negative pressure to the cathode so as to introduce gas containing oxidant to the cathode. The pump applies negative pressure to the anode **via the exhaust flow path** so as to supply fuel to the anode.

As is apparent from Fig. 1 of Kobayashi, flow paths are provided for the cathode side and the anode side individually. In other words, the flow paths are separate. No single flow path is linked with **both** the anode side and the cathode side of the fuel cell. Therefore,

Kobayashi fails to teach or suggest “an exhaust flow path communicating with both the anode and the cathode”.

Further, in Kobayashi, a fuel cell (1) is divided into a cathode side and an anode side across an electrolyte membrane (1c). Kobayashi states:

As shown in FIG. 2, the fuel cell 1 is divided into a cathode side (an oxygen pole side) and an anode side (a hydrogen pole side) across an electrolyte membrane 1c. Electrodes containing a platinum series catalyst are provided on both sides to form a cathode electrode 1b and an anode electrode 1d, respectively.¹

A person of ordinary skill in the art would understand that the anode side and the cathode side are spatially separated from each other. A cathode side gas passage (1a) is provided outside a cathode electrode (1b) (please see column 4, lines 31-33), which is formed on the cathode side (see column 4, lines 17-19). The inlet and outlet of the cathode side gas passage (1a) are connected to an air-supplying apparatus (2) (see column 4, lines 36-37), which includes a suction pump (24) (see column 4, lines 61-67).

The suction pump (24) is related only to the cathode side, and there is no linkage thereof with the anode side. Therefore, Kobayashi fails to teach “a gas supply unit having a pump, **the pump being linked with the exhaust flow path** to apply negative pressure to the cathode so as to introduce gas containing oxidant to the cathode, wherein **the pump applies negative pressure further to the anode via the exhaust flow path** so as to supply fuel to the anode”.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. (*Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)). As discussed above, Kobayashi fails to disclose all the features of amended independent Claim 2.

¹ Kobayashi, col. 4, lines 14-19.

The outstanding Office Action asserts that Kobayashi teaches connection of the suction pump with the fuel cell (1) as a whole and that suffices to establish a rejection of Claim 2 as anticipated by Kobayashi. However, in a novelty rejection, the identical invention must be shown in as complete detail as is contained in the ... claim. (*Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)). Kobayashi lacks such complete detail with respect to linkage of the pump with the anode.

Additionally, amended independent Claim 2 is respectfully submitted to be unobvious over Kobayashi. As discussed above, Kobayashi fails to teach or suggest all the features of amended Claim 2. Therefore, the basic criteria to establish a *prima facie* case of obviousness is not met. Please see MPEP § 2143. If the PTO does not produce a *prima facie* case, Applicants are under no obligation to submit evidence of nonobviousness.

Kobayashi teaches that hydrogen in the hydrogen-supplying apparatus (3), particularly at a diaphragm of a regulator (32), is already depressurized to a pressure near the negative pressure in the air-supplying apparatus (2) (please see column 6, lines 42-64). As no pressurization of the hydrogen at this point is provided, a hydrogen-circulating pump (33) is required to make the hydrogen flow into the fuel cell (1) (see the foot of column 6 through the top of column 7).

In the invention recited in amended independent Claim 2, a pump such as the hydrogen-circulating pump (33) can be omitted because the pump linked with the exhaust flow path instead supply fuel to the anode. Omission of an element and retention of its function is an *indicia* of unobviousness. (*In re Edge*, 359 F.2d 896, 149 USPQ 556 (CCPA 1966)). MPEP § 2144.04(II)(B) states:

B. Omission of an Element with Retention of the Element's Function Is an Indicia of Unobviousness

Note that the omission of an element and retention of its function is an *indicia* of unobviousness. *In re Edge*, 359 F.2d 896, 149 USPQ 556 (CCPA 1966) (Claims at issue were

directed to a printed sheet having a thin layer of erasable metal bonded directly to the sheet wherein said thin layer obscured the original print until removal by erasure. The prior art disclosed a similar printed sheet which further comprised an intermediate transparent and erasure-proof protecting layer which prevented erasure of the printing when the top layer was erased. The claims were found unobvious over the prior art because the although the transparent layer of the prior art was eliminated, the function of the transparent layer was retained since appellant's metal layer could be erased without erasing the printed indicia).²

Thus, omission of an element with retention of the element's function as would be the case if Kobayshi were modified to include the features of amended Claim 2 is an indicia of unobviousness. The invention recited in amended independent Claim 2 retains the function of the upstream hydrogen-circulating pump (33), but does not require the presence of this pump. Accordingly, Applicants respectfully submit that amended independent Claim 2 patentably distinguishes over Kobayashi for at least the reasons discussed above.

Additionally, Applicants respectfully submit that omission of the hydrogen-circulation pump (33), valve (34), and closed loop of flow paths associated with them is necessary to achieve the modification of Kobayashi asserted in the outstanding Office Action. One reason for this is that these elements would be obstructive to linkage of the claimed pump with the anode via the exhaust flow path. Another is that the hydrogen-circulation pump (33) at the upstream of the fuel cell is resistant to fuel supply driven by the negative pressure generated by the pump at the exhaust flow path.

Accordingly, Applicants respectfully submit that amended independent Claim 2 patentably distinguishes over Kobayashi for at least the reasons discussed above.

Independent Claim 22 recites substantially similar features to those discussed above regarding amended independent Claim 2 and patentably distinguishes over Kobayashi for at least the same reasons as amended independent Claim 2 does.

² Manual of Patent Examining Procedure, Eighth Edition, Rev. 3, August 2005.

Claims 3 and 23 each depend from one of independent Claims 2 and 22 and patentably distinguish over Kobayashi for at least the same reasons as discussed above regarding amended independent Claim 2 and independent Claim 22.

Applicants respectfully submit that, in accordance with 37 C.F.R. § 1.116, the present amendment should be entered inasmuch as it places the application in better form for appeal.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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